Preface

The incidence and mortality rates of prostate cancer have shown a rising trend in both developed and developing countries over the last two decades. The rise in incidence rates of prostate cancer across the world, stresses the need to identify potential risk factors and develop sensitive screening and therapeutic modalities for prostate cancer. Despite the absence of strong exogenous risk factors, endogenous genetic factors may partly explain the variation in risk between ethnic groups. Studies on the genetic aspects of prostate cancer are very limited in the Indian population especially in South Indians. Identification of genetic variations and gene-gene interactions pertaining to a population will unravel the genetic profiles attributing to an increased risk for prostate cancer. With this view in mind the present work is taken up for the doctorate degree and presented in this thesis.

The thesis is focused on identifying the association of genetic polymorphisms in androgen metabolism, carcinogen metabolism, DNA repair and apoptosis with prostate cancer risk in South Indian men. Each one of these pathways is presented as separate chapters.

The first chapter gives an overview of the epidemiology of prostate cancer and the importance of various risk factors with emphasis on the genetic factors. It presents a review of the genetic variations reported in prostate cancer and focuses on the polymorphisms of interest. Following this introductory chapter, the study design, subject selection, general methodology and statistical methods have been explained in Chapter II. Chapters III, IV, V and VI deal with the androgen metabolizing gene polymorphisms, carcinogen metabolizing gene polymorphisms, DNA repair gene polymorphisms and apoptotic regulatory proteins respectively. The combined effect of all these gene polymorphisms towards the risk of prostate cancer have been analyzed in chapter VII. The salient outcomes of the study have been presented and the thesis is concluded with the scope of future research.